source, the flexible graphite sheet having first and second major planar surfaces and having axes of higher thermal conductivity parallel to said major planar surfaces, one of said major planar surfaces being in direct operative contact with the heat source.

B1 Cont

MARKED UP CLAIMS TO SHOW CHANGES

1. (Twice Amended)A thermal management system comprising a heat source having an external surface and a thermal interface which comprises an anisotropic flexible graphite sheet formed by compressing exfoliated particles of natural graphite and having a planar area greater than the area of the external surface of the heat source, the flexible graphite sheet <u>having first and second major planar surfaces and having axes of higher thermal conductivity parallel to said major planar surfaces, one of said major planar surfaces</u> being in direct operative contact with the heat source.

COMMENTS

The present invention is directed to a thermal interface for use between a heat source and a heat sink. The thermal interface is made from a thin sheet of anisotropic flexible graphite material. One of the major surfaces of the sheet engages the heat source and the other engages the heat sink. The axes of highest thermal conductivity

31

of the sheet are parallel to its major surfaces and thus parallel to the surfaces engaged by the heat source and the heat sink.

The Hoover '166 patent which the Examiner is primarily relying upon differs significantly, in that the graphite "thermal shunt" disclosed by Hoover is not a thin sheet between a heat source and a heat sink, but instead is an elongated heat pipe which is attached to the heat source and the heat sink <u>at its ends, not on its major planar surfaces.</u> Hoover's direction of greatest thermal conductivity is along its length extending from the heat source to the heat sink, not along the surfaces engaging the heat source and the heat sink.

Independent claims 4 and 15 already included language which requires the above described orientation of the sheet. Claim 1 has been amended to add such language. Thus the distinction described above is present in all of the pending claims.

Additionally, Hoover does not disclose a "flexible graphite sheet" as required by all of the pending claims. A flexible graphite sheet as defined herein is formed by compressing exfoliated particles of graphite so that a sheet is formed wherein the particles are oriented parallel to the major surfaces of the sheet and the sheet has first and second axes of major thermal conductivity parallel to the plane of the sheet, and a third axis of much lower thermal conductivity through the thickness of the sheet. Hoover, on the other hand, is a bundle of graphite <u>fibers</u>. Hoover has only one axis of high thermal conductivity, and that is along the length of the fibers.

The Hoover invention is entirely dependent upon having its bundle of fibers oriented so that one end of the bundle engages the heat source and the other engages the heat sink, so that its direction of <u>highest</u> thermal conductivity runs from the heat

source to the heat sink. It is very difficult to see how anyone could conclude from the teachings of Hoover that a thermal interface should be constructed from a flexible graphite sheet (which is a completely different material) oriented so that its direction of lowest thermal conductivity runs from the heat source to the heat sink.

The secondary reference to Lenling (6,099,974) does nothing to supply the missing teaching. Lenling, at most, simply says that the heat sink (not the thermal interface) can be made of some kind of graphite material.

CONCLUSION

In summary, it is believed that the arguments and amendments set forth above are sound, and accordingly entry of this amendment and reconsideration of the application is requested along with an early indication of the allowance of claim 1-2, 4-12 and 14-22.

Respectfully submitted,

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